a first birefringent element having an equivalent angular orientation of 45° and having a phase delay of Γ: and

a second birefringent element having an equivalent angular orientation of -21° and having a phase delay of 2Γ.

Cont'd 81

48. (previously presented) The interleaver as recited in claim 37, wherein the birefringent element assembly and the reflector are configured so as to facilitate interleaving of a plurality of input light beams simultaneously.

49. (currently amended) The interleaver as recited in claim 37, wherein interleaved channels have spacing which is tunable by changing the distance between polarization beam splitter and the reflector.

REMARKS

This is a response to the Office Action Mailed May 29, 2003 in relation to the above-identified patent application. Claims 1-23 have been canceled by a previous amendment. Claims 24-49 are presently pending. Claims 24-37, 44 and 49 have been amended by this response.

Objections to the Specification

The Examiner objected to the specification as not explicitly identifying which particular elements of the instant invention are to be taken as being spatial birefringent elements.

However, it is respectfully submitted that paragraph [0055] of the specification explicitly identifies which particular elements of the instant invention are to be taken as being exemplary spatial birefringent elements in stating:

"[0055] The spatial birefringent element preferably comprises a polarization beam splitter (which separates an optical beam into two orthoganally polarized optical components); a first mirror; a second mirror; first quarter-wave waveplate(s) having an optic axis thereof oriented at an angle of approximately 45 degrees with respect to the +x axis at that location, the first quarter-wave waveplate(s) being disposed intermediate the polarization beam splitter and the first mirror; second quarter-wave waveplate(s) having an optic axis thereof oriented at an angle of approximately 45 degrees with respect to the +x axis at that location, the second quarter-wave waveplate(s) being disposed intermediate the polarization beam splitter and the second mirror."

Claim Objections

The Examiner objected to claims 25-36 as having indicated dependencies in error. The claims have been amended according.

Rejection of Claims 36 and 49 Under 35 U.S.C. Section 112

The Examiner rejected claims 36 and 49 under 35 U.S.C. 112, second paragraph, as being indefinite for lacking proper antecedent support. The claims have been amended accordingly.

Rejection of Claims 24 and 37 Under 35 U.S.C. Section 102

The Examiner rejected claims 24 and 37, among others, under 35 U.S.C. Section 102(e) as being anticipated by Chang et al.

It appears that the Examiner has taken the position that the two light beams shown in Figure 4A of the Chang et al. reference have different optical path lengths which anticipate the different path lengths recited in independent claims 24 and 37 of the subject patent application. Such differences in optical path length may result, for example, due to the action of the polarization beam displacer 400 and/or the wave plate 402.

However, it is respectfully submitted that any difference in path lengths of the Chang et al. device is merely incidental and does result in interleaving. Rather, interleaving is facilitated in the Chang et al. device via birefringent assembly 420 of

Figure 4A, which uses birefringent crystals 424 and 426 according to well known principles, rather than using spatial birefringence.

Thus, although there may, admittedly, be some very minor differences in path length for two light paths according to the Chang et al. device, the difference in optical path lengths in the Chang et al. device does not effect interleaving.

It is important to appreciate that interleaving is facilitated in the present invention by spatial birefringence (differences in optical path caused by spatial differences and/or the use of materials having different indices of refraction), whereas interleaving is facilitated in the Chang et al. device via birefringent crystals 424 and 426 (col. 5, line 66 to col. 6, line 3).

Moreover, it is respectfully submitted that none of the cited prior art, taken either alone or in combination with one another, either anticipates or make obvious, "the difference in optical path lengths being sufficient to facilitate interleaving", as recited in amended independent claims 24 and 37.

It is further respectfully submitted that dependent claims 25-36 and 38-49 are allowable as depending from an allowable base claim.

In view of the foregoing, it is respectfully submitted that all of the pending claims (claims 24-49) are in condition for immediate allowance. Reconsideration and an early allowance are respectfully requested.

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Respectfully submitted,
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